

Claims

1. A method for merging contiguous like commands for transfers between a storage medium and memory, comprising:
  - 5 accumulating a plurality of commands in a queue while a first command is being processed by the storage medium;
  - examining the plurality of commands in the queue while the first command is being processed, the examining further including,
    - 10 checking if any of the plurality of commands are like commands, each of the like commands corresponding to a file stored on a storage medium; and
    - determining if any of the files on the storage medium are stored contiguously with respect to one another;
    - combining the like commands corresponding to contiguous files as a combined command; and
    - issuing the combined command to the storage medium upon completion of the 15 processing of the first command.
2. The method as recited in claim 1, wherein the storage medium is a hard drive.
- 20 3. The method as recited in claim 1, wherein each read and write command includes a command data block (CDB) and a scatter gather list (SGL), the CDB being configured to identify the location of a file on the storage medium, the SGL being configured to include data pointers.
- 25 4. The method as recited in claim 1, further including:

providing a multithread environment, the multithread environment allowing multiple read and write commands to be processed concurrently.

5. The method as recited in claim 1, wherein the combined command is  
5 transparent o the operating system.

6. The method as recited in claim 3, wherein the SGL of the combined command is expanded from the SGL of a non-combined command.

10 7. A method for combining commands for data transfer between a drive and memory, comprising:

receiving multiple read or write commands in a queue;  
processing a first command of the multiple read or write commands;  
examining the multiple read or write commands, the examining including,

15 identifying like commands of the multiple read or write commands while processing the first command, each of the like commands being associated with a file stored on the drive, and

ascertaining which of the files associated with the like commands are contiguous files;

20 creating a combined command, the combined command being configured to consolidate the identified like commands being associated with contiguous files; and  
issuing the combined command to the drive.

8. The method as recited in claim 7, further including:

25 providing a multithread environment, the multithread environment allowing multiple read and write commands to be processed concurrently.

9. The method as recited in claim 7, wherein each read and write command includes a command data block (CDB) and a scatter gather list (SGL), the CDB being configured to identify the location of a file on the drive, the SGL being configured to include data pointers.

10. The method as recited in claim 7, wherein the queue has a capacity of 256 commands.

11. The method as recited in claim 7, further including:

processing the combined command; and  
generating one interrupt for the processed combined command.

12. An apparatus for merging contiguous like commands, comprising:  
an operating system, the operating system generating read and write commands;  
a storage media, the storage media being configured to process read and write commands, the read and write commands being associated with files stored on the storage media; and

a driver queue, the driver queue being configured to receive the read and write commands from the operating system, the read and write commands being examined in the driver queue to identify like commands associated with contiguous files on the storage media, the identified commands being combined into one command, the one command being issued to the storage media.

25 13. The apparatus of claim 12, wherein the storage media is a hard drive.

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14. The apparatus of claim 12, further including:  
a multithread environment, the multithread environment allowing for multiple combined commands to be processed concurrently.
- 5        15. The apparatus of claim 12, wherein each read and write command includes a command data block (CDB) and a scatter gather list (SGL), the CDB being configured to identify the location of a file on the drive, the SGL being configured to include data pointers.
- 10        16. The apparatus of claim 15, wherein the SGL of the combined command is expanded from the SGL of a non-combined command.
17. A computer readable media having program instructions for combining commands for data transfer between a drive and memory, comprising:  
15        program instructions for receiving multiple read or write commands in a queue;  
program instructions for processing a first command of the multiple read or write commands;  
program instructions for combining multiple read or write commands, the combining including,  
20        program instructions for identifying like commands of the multiple read or write commands while processing the first command, each of the like commands being associated with a file stored on the drive, and  
program instructions for ascertaining which of the files associated with the like commands are contiguous files;

program instructions for creating a combined command, the combined command being configured to consolidate the identified like commands being associated with contiguous files; and

program instructions for issuing the combined command to the drive.

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18. The computer readable media as recited in claim 17, further including:

program instructions for providing a multithread environment.

19. The computer readable media as recited in claim 17, wherein each read  
10 and write command includes a command data block (CDB) and a scatter gather list  
(SGL), the CDB being configured to identify the location of a file on the drive, the SGL  
being configured to include data pointers.

20. The computer readable media as recited in claim 17, wherein the drive is a  
15 hard drive.